

Amendments to the Claims:

1. (Currently Amended) A method for detecting a difference in the sequence of two nucleic acid molecules comprising:
 - a. Contacting ~~said~~ the two nucleic acids under conditions that allow the formation of a four-way complex and branch migration;
 - b. Contacting ~~said~~ the four-way complex with a tracer molecule and a detection molecule under conditions in which the detection molecule is capable of binding the tracer molecule or the four-way complex; and
 - c. Determining binding of the tracer molecule to the detection molecule before and after exposure to ~~said~~ the four-way complex, wherein competition of the four-way complex with the tracer molecule for binding to the detection molecule results in reduced binding of the tracer molecule to the detection molecule after the exposure to the four-way complex, which ~~after contact~~ indicates the presence of a difference between the two nucleic acids.
2. (Currently Amended) A method for detecting a difference in the sequence of two nucleic acid molecules comprising:
 - a. Contacting ~~said~~ the two nucleic acids under conditions that allow the formation of a four-way complex and branch migration;
 - b. Contacting ~~said~~ the four-way complex with a tracer molecule and a detection molecule under conditions in which the detection molecule is capable of binding the tracer molecule or the four-way complex; and
 - c. Comparing binding of ~~said~~ the tracer molecule ~~said to the~~ detection molecule in step b [b.] with binding of ~~said~~ the tracer molecule to ~~said~~ the detection molecule in said a test solution sample without said the four-way complex, wherein reduced binding of the tracer molecule to the detection in the presence of the four-way complex ~~in b.~~ indicates a difference between the two nucleic acids.
3. (Currently Amended) The method of Claim 1 or 2, wherein steps ~~a. and b.~~ a and b are carried out simultaneously.

4. (Currently Amended) The method of Claim 1 or 2, wherein under ~~said~~ the branch migration conditions ~~said~~ the four-way complex is capable of resolution if the nucleic acids are identical in sequence.
5. (Currently Amended) The method of Claim 1 or 2, wherein under ~~said~~ the branch migration conditions ~~said~~ the four-way complex is not capable of resolution if the nucleic acids are not identical in sequence.
6. (Currently Amended) The method of Claim 1 or 2, wherein under ~~said~~ the branch migration conditions if a difference between ~~said~~ the two related nucleic acid sequences is present, branch migration in ~~said~~ the four-way complex ceases and ~~said~~ the four-way complex is stabilized, and if no difference between ~~said~~ the two related nucleic acid sequences is present, branch migration in ~~said~~ the four-way complex continues until complete strand exchange occurs and ~~said~~ the four-way complex resolves into two duplex nucleic acids, thereby forming a stabilized four-way complex.
7. (Original) The method of Claim 1 or 2, wherein the difference is a mutation, an insertion, a deletion or a single base substitution.
8. (Original) The method of Claim 1 or 2, wherein one of the nucleic acids is DNA.
9. (Currently Amended) The method of Claim 1 or 2, wherein ~~said~~ the four-way complex comprises a Holliday junction.
10. (Currently Amended) The method of Claim 1 or 2, wherein ~~said~~ the detection molecule is capable of selectively binding a four-way nucleic acid complex.
11. (Currently Amended) The method of Claim 10, wherein ~~said~~ the detection molecule is capable of selectively binding a Holliday junction.
12. (Currently Amended) The method of Claim 11 wherein ~~said~~ the detection molecule is selected from the group consisting of RuvA, RuvC, RuvB, RusA, RuvG, Ccl, spCcl, Hjc and mutants or analogs thereof.
13. (Currently Amended) The method of Claim 11, wherein ~~said~~ the detection molecule is thermostable.
14. (Currently Amended) The method of Claim 1 or 2, wherein ~~said~~ the tracer molecule is a nucleic acid comprising a stable four-way complex.
15. (Currently Amended) The method of Claim 1 or 2, wherein ~~said~~ the tracer molecule is a nucleic acid comprising an immobile four-way complex.

16. (Currently Amended) The method of Claim 14, wherein ~~said~~ the tracer molecule comprises one, two, three or four oligonucleotides.
17. (Currently Amended) The method of Claim 1 or 2, wherein ~~said~~ the tracer molecule is capable of selectively binding the detection molecule.
18. (Currently Amended) The method of Claim 1 or 2, wherein ~~said~~ the tracer molecule comprises a detectable label.
19. (Currently Amended) The method of Claim 18, wherein ~~said~~ the detectable label is capable of generating a signal upon binding of said tracer molecule to said detection molecule.
20. (Currently Amended) The method of Claim 18, wherein ~~said~~ the detectable label is a fluorescent label.
21. (Currently Amended) The method of Claim 20, wherein ~~said~~ the fluorescent label is selected from the group consisting of fluorescein, rhodamine, [cy] cyanine dyes or BODIPY.
22. (Currently Amended) A tracer molecule comprising a detectable label and a nucleic acid complex, wherein ~~said~~ the nucleic acid complex comprises a stable four-way junction.
23. (Currently Amended) The tracer molecule of Claim 22, wherein ~~said~~ the tracer molecule comprises one, two three or four oligonucleotides.
24. (Currently Amended) The tracer molecule of Claim 22, wherein ~~said~~ the tracer molecule is capable of generating a signal upon binding to a detection molecule.
25. (Currently Amended) The tracer molecule of Claim 22, wherein ~~said~~ the detectable label is a fluorescent label.
26. (Currently Amended) The tracer molecule of Claim 22, wherein ~~said~~ the fluorescent label is selected from the group consisting of fluorescein, rhodamine, [cy] cyanine dyes and BODIPY.